Simcoe

82 11 04
RR 108.49

Regional Municipality of Halton
2316 South Service Road West
P.O. Box 7000
Oakville, Ontario
L6J 6E1

Attention: Mr. E. B. Robertshaw, P. Eng.

Dear Sirs:

Re: Water Service to the Proposed Skyview Estates Subdivision - Town of Oakville

General

As discussed with you, we have performed various analyses on the Burlington Water System in an attempt to determine the effect that the Skyview Estates Subdivision will have on the Burlington Water Distribution System. This residential subdivision, although located in the Town of Oakville, can best be served, at least on an interim basis, via the Burlington Water Distribution System. We have examined in this report the need for additional work with respect to distribution of supply due to this subdivision.

Study Area

The area under consideration to be added to the Burlington Distribution System can generally be described as those lands proposed as the Skyview Estates Subdivision. The property is located in the extreme southwest sector of the Town of Oakville, north of Lakeshore Road West and east of Burloak Drive. The subdivision is approximately rectangular in shape and consists of an area of 200 ha. The total number of lots in the proposed subdivision is 243, resulting in a total anticipated population of 730. The drawing accompanying this letter, indicates the location of the subdivision relative to the Burlington Water Distribution System.

Water Consumption

Based on the adopted unit consumption rates for the updated Burlington Water Distribution System Report, we have calculated in the attached table the estimated consumption for this particular subdivision. We have assumed a fire flow requirement of 5235 m^3/d (800 gpm) based on the Guide for Determination of Required Fire Flow as

supplied by the Insurance Services Offices Method. We feel this is a reasonable fire flow for new development consisting of single lot buildings in new subdivisions.

Previous Reports

A report was prepared by Herbert R. Peele Limited, Consulting Engineers, for this subdivision, and the effect this subdivision would have on the water distribution system. We have examined this report with respect to its findings and would comment as follows:

1. This report did not consider for a 300 mm (12 inch) watermain on Burloak Drive which is now in place between Lakeshore Road and New Street.

2. The internal servicing and street layout has changed only slightly from that proposed in the report by Herbert R. Peele Limited, Consulting Engineers. The major difference between the two reports is that the watermain on Stevenson Road has been increased in size from a 150 mm to a 200 mm.

3. We have examined the computer output in the previous report and have considerable difficulty in correlating the information in these analyses to that prepared in our Water Distribution Study for the Burlington Water System in 1977. In examining the analysis performed for the maximum hour p.m. existing condition, we note that in some instances pressures are as low as 12 psi, although Mr. Peele indicates that this condition is still satisfactory.

Distribution Analyses

We have assumed that this area, along with other areas west of the Bronte Creek, would be serviced by the Burlington system in the interim until such time as a connection is made across the Bronte Creek to the Oakville Water Distribution System. In our previous report entitled, "Report on the Effects of New Development and Infilling on the Burlington Water Purification Plant Expansions and Water Distribution System" dated May, 1981, we had identified, as a major deficiency in this area, a trunk watermain extension generally along the HEPC right-of-way in the north of Zone 1 and southerly along the extension of Burloak Drive, in order to service the lands developed

in this area, as well as some residential areas in Oakville. It is also the intention that this watermain would strengthen the existing system in the eastern extremity of Burlington. At present, the section from New Street to the northerly limit of Zone 1 has been constructed in 400 mm. The east/west connection from the 400 mm to Appleby Line to date has not been constructed. We have completed an analysis for the condition of maximum day plus fire for the existing system, assuming a fire was located on the northeast corner of Wilmont Crescent in this particular subdivision. We believe this to be the most crucial location within the subdivision with respect to fire flow requirement. We have found this analysis to be satisfactory with a pressure of ~~260~~ kPa (~~38~~ psi) at the fire flow location. ~~262~~ ~~38~~

We have also completed a Maximum Hour p.m. analysis. In this instance we have not found the pressures to be satisfactory in the east end of the Burlington System. The basis of the analysis has been to assume the existing system as is, with Skyview Estates subdivision added on to the Burlington System. The analysis has indicated pressures in the order of ~~138~~ kPa ~~(20 psi)~~ in this area. We believe the major reasons for this are as follows: 202 29

1. The maximum hour demands are significantly greater than the maximum day plus fire demand.

2. The inclusion of all of the area west of Bronte Creek increases the losses in the eastern part of the system.

It would be possible to improve the pressure to some extent in this area by "shutting in" the Washburn and Brant Street Reservoirs during maximum hour conditions. The Burlington Filtration Plant high lift could then pump at increased pressures for short durations of time.

It should be noted that the effect of the Skyview Estates Subdivision is not significant due to its size, but does increase the demand slightly.

Proposed Improvements for this Area

There are two major improvements identified in this area:

1. Proposed 500 mm main in the extreme northerly portion of Zone 1

between Appleby Line and the existing 400 mm just west of Burloak Drive. This watermain was identified in our report on the Effects of New Development and Infilling on the Burlington Water Purification Plant Expansions and the Water Distribution System, May 1981. We have identified the cost of this portion of the watermain to be approximately $500,000. This proposed main has a number of functions, including the following:

a) increased security for supply to the east portion of the City of Burlington in Zone 1;

b) supply to the area west of Bronte Creek;

c) supply fire protection, especially to the area north of New Street and west of Burloak Drive which is proposed as industrial;

d) future connection to the Oakville Water System via the Rebecca Street connection to allow for distribution of flow in either direction between the two systems.

It is apparent that this main is required immediately if all of the area west of Bronte Creek is to remain on the Burlington System. In addition, once a major industrial facility is located in this area, it would be necessary for this main to be in place to ensure that the fire flow supply would be available for that particular industry. It is, therefore, our belief that this watermain should be constructed as soon as feasible in order to service the functions as outlined above.

2. Proposed 12-inch through Skyview Estates Subdivision. At this stage, it is very difficult to realize what the ultimate proposed development in the areas adjacent to and east of the proposed Skyview Estates Subdivision will be. We would, therefore, recommend that the proposed 200 mm watermain on Stevenson Road be increased to 300 mm. This will ensure suitable supply to potential developments to the east if they do proceed in the future. It would be possible to construct this 300 mm watermain along Lakeshore Road between Burloak Drive and Stevenson Road as an alternate to this proposed location. As part of this watermain and the proposed 500 mm watermain, we would recommend the

inclusion of pressure transmitters that would transmit pressure back to the Central Control at the Burlington Water Plant.

Proposed Cost Sharing

We have examined the original breakdown of cost sharing, as prepared in our letter to the Regional Municipality dated 81 11 11, with respect to sharing of contributions in the City of Burlington Water Distribution System. In that analysis, we had proposed that the breakdown would be done on a zone basis, based on percentage of increase of flow for residential, industrial, and commercial areas. We believe at this time that the information contained in that table is still reasonable and would suggest that the breakdown of 68 per cent for residential and a 32 per cent for commercial and industrial be maintained.

Recommendations and Conclusions

Based on our analysis of this particular system, we have concluded that the proposed Skyview Estate Subdivision will have very little effect on the Burlington Distribution System. The fire flow would be no greater than that required for existing residential areas immediately to the west.

There is, however, a significant problem in attempting to service this area during the Maximum Hour p.m. condition assuming all of the area west of Bronte Creek is included in the Zone 1 Burlington System. This presure problem could be alleviated in part by increasing the hydraulic grade from the Water Purification Plant.

We , therefore, recommend that the 500 mm in the north of Zone 1 should be constructed as soon as possible. In addition, we would recommend the oversizing of the 200 mm diameter watermain on Stevenson Road to ensure this main is of adequate size for possible future development.

Yours very truly,

SIMCOE ENGINEERING LIMITED

RLS/jr

R. L. Smith, P. Eng.

SKYVIEW ESTATES

PROJECTED WATER PRODUCTION REQUIREMENTS

POPULATION	- 729 PERSONS
AVERAGE DAY	- 190 m^3/d - 0.042 migd
MAXIMUM HOUR (a.m.)	- 426 m^3/d - 0.094 migd
MAXIMUM HOUR (p.m.)	- 568 m^3/d - 0.125 migd
MINIMUM HOUR	- 133 m^3/d - 0.029 migd
FIRE FLOW	-5235 m^3/d - 800 igpm

APPENDIX

TABLES FROM REPORT ON EFFECTS OF NEW DEVELOPMENT AND INFILLING ON THE BURLINGTON WATER PURIFICATION PLANT EXPANSIONS AND WATER DISTRIBUTION SYSTEM

SUMMARY OF REQUIRED IMPROVEMENTS TO 1985

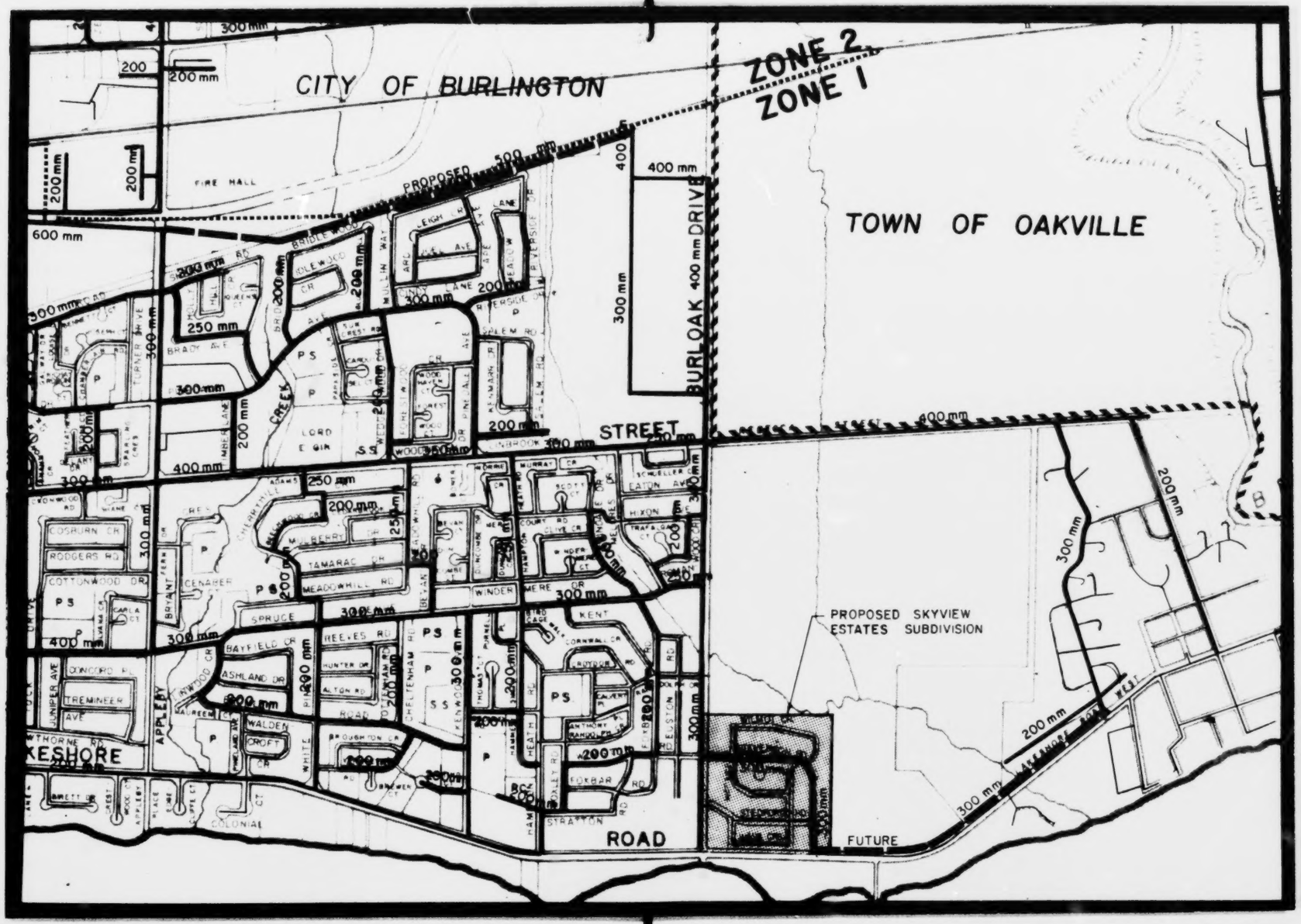
	TOTAL AMOUNT	RESIDENTIAL COMPONENT	INDUSTRIAL COMPONENT
ZONE I			
1. Connection to Kingsway Pumping Station	$ 595,000	$ 400,000	$ 195,000
2. East Burlington Connection	935,000	635,000	300,000
ZONE IA			
Expansion of Waterdown Road Reservoir - 4000 m^3 in 1985	400,000	50,000	350,000
ZONE II			
Improvements to Washburn Zone II Pumping Station - add one pump (41,000 m^3) and standby in 1982	250,000	35,000	215,000
ZONE III			
1. Improvements to Washburn Zone III Pumping Station - add one pump (22,500 m^3/d) and standby in 1982	200,000	200,000	
2. 600 mm watermain from Washburn to Upper Middle Road -1982	350,000	350,000	
3. Headon Reservoir - 1985 - 16,450 m^3	1,750,000	1,750,000	
4. Feedermain to Headon Reservoir - 1985	1,300,000	1,300,000	
TOTAL	$5,780,000		

SUMMARY OF ANALYSIS FOR RESIDENTAL AND INDUSTRIAL AND COMMERCIAL COMPONENTS FOR NEW DEVELOPMENT

ZONE SERVICED	RESIDENTIAL				INDUSTRIAL AND COMMERCIAL			
	1980 POPUL'N	ULTIMATE POPUL'N	INCREASE IN FLOW (m^3/d)	% OF TOTAL INCREASE	1980 HECTARES	ULTIMATE HECTARES	INCREASE IN FLOW (m^3/d)	% OF TOTAL FLOW
1	67,875	94,175	15,780	68	209.2	360.7	7575	32
1A	8,257	9,685	856	13	121.2	237.1	5795	87
2	15,090	24,820	5,838	14	626.3	1348.9	723	86
3	8,419	83,770	45,196	100	11.2	12.7	75	0
4	8,005	13,855	3,510	100	-	-	-	-
5	224	224	-	-	-	-	-	-
TOTAL	107,870	226,530	71,196	59	967.9	1959.4	49575	41

SUMMARY OF REQUIRED IMPROVEMENTS TO 1985

	TOTAL AMOUNT	EXISTING DEVELOPMENT	NEW DEVELOPMENT		
			TOTAL	RESIDENTIAL	INDUSTRIAL/ COMMERCIAL
ZONE I					
1. Connection to Kingsway Pumping Station	$ 595,000	$ 150,000	$ 445,000	$ 300,000	$ 145,000
2. East Burlington Connection	935,000	235,000	700,000	400,000	300,000
ZONE IA					
Expansion of Waterdown Road Reservoir - 4000 m^3 in 1985	400,000	110,000	290,000	36,000	254,000
ZONE II					
Improvements to Washburn Zone II Pumping Station - add one pump (41,000 m^3/d) and standby in 1982	250,000	--	250,000	35,000	215,000
ZONE III					
1. Improvements to Washburn Zone III Pumping Station - add one pump (22,500 m^3/d) and standby in 1982	200,000	--	200,000	200,000	--
2. 600 mm watermain from Washburn to Upper Middle Road - 1982	350,000	--	350,000	350,000	--
3. Headon Reservoir - 1985 - 16,450 m^3	1,750,000	--	1,750,000	1,750,000	--
4. Feedermain to Headon Reservoir - 1985	1,300,000	--	1,300,000	1,300,000	--
	$5,780,000				


CITY OF BURLINGTON
ZONE 2
ZONE 1
TOWN OF OAKVILLE
PROPOSED SKYVIEW ESTATES SUBDIVISION
FUTURE
FIRE HALL
PROPOSED
BURLOAK DRIVE
400 mm
300 mm
200 mm
600 mm
250 mm
400 mm
STREET
ROAD
LAKESHORE
APPLEBY
CREEK
LORD E GIN PS
SS
PS
P
BCA